WHAT IS CLAIMED IS:

1   1.   A method for providing constraint-based guidance to a
2   designer in a collaborative design environment, the method comprising:
3   receiving signals from designers wherein the signals represent design
4   choices for variables of a design;
5   generating a network of design constraints which represent
6   interactions among the variables of the design;
7   evaluating the network of design constraints to obtain conflict
8   information in response to the signals; and
9   transmitting signals to designers affected by the conflict information
10 to provide constraint-based guidance to the affected designers in the collaborative
11 design environment.

1   2.   The method as claimed in claim 1 wherein the conflict
2   information includes feasible or infeasible values for the variables of the design.

1   3.   The method as claimed in claim 1 wherein the conflict
2   information includes design constraints associated with the variables of the design.

1   4.   The method as claimed in claim 1 wherein the conflict
2   information includes constraint violations associated with the variables of the design.

1   5.   The method as claimed in claim 1 wherein the design is an
2   engineering design.

1   6.   The method as claimed in claim 1 wherein the design is a
2   complex financial plan.

1   7.   The method as claimed in claim 1 wherein the step of
2   evaluating includes the step of applying a constraint propagation algorithm to the
3   network of design constraints to compute the conflict information.

1   8.   The method as claimed in claim 1 wherein the design

2 constraints have an arbitrary form.

1   9.   The method as claimed in claim 1 wherein the conflict

2 information includes feasible or infeasible values for the variables of the design,

3 design constraints associated with the variables of the design and constraint

4 violations associated with the variables.

1   10.   The method as claimed in claim 1 wherein the guidance is

2 constraint-based heuristic support.

1   11.   A system for providing constraint-based guidance to a

2 designer in a collaborative design environment, the system comprising:

3   means for receiving signals from designers wherein the signals

4 represent design choices for variables of a design;

5   a design process manager for generating a network of design

6 constraints which represent interactions among the variables of the design;

7   a constraint manager for evaluating the network of design constraints

8 to obtain conflict information in response to the signals; and

9   a notification manager for transmitting signals to designers affected

10 by the conflict information to provide constraint-based guidance to the affected

11 designers in the collaborative design environment.

1   12.   The system as claimed in claim 11 wherein the conflict

2 information includes feasible or infeasible values for the variables of the design.

1   13.   The system as claimed in claim 11 wherein the conflict

2 information includes design constraints associated with the variables of the design.

1   14.   The system as claimed in claim 11 wherein the conflict

2 information includes constraint violations associated with the variables of the design.

1   15.   The system as claimed in claim 11 wherein the design is an

2   engineering design.

1   16.   The system as claimed in claim 11 wherein the design is a

2   complex financial plan.

1   17.   The system as claimed in claim 11 wherein the constraint

2   manager applies a constraint propagation algorithm to the network of design

3   constraints to compute the conflict information.

1   18.   The system as claimed in claim 11 wherein the design

2   constraints have an arbitrary form.

1   19.   The system as claimed in claim 11 wherein the conflict

2   information includes feasible or infeasible values for the variables of the design,

3   design constraints associated with the variables of the design and constraint

4   violations associated with the variables.

1   20.   The system as claimed in claim 11 wherein the guidance is

2   constraint-based heuristic support.